University of Alberta

Validation of the Child and Adolescent Social Perception Measure

by

Valerie D. Guiltner

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Master of Education

Department of Education Psychology

Edmonton, Alberta

Spring, 2000

National Library of Canada
Acquisitions and Bibliographic Services
395 Wellington Street
Ottawa ON K1A 0N4
Canada

Bibliothèque nationale du Canada
Acquisitions et services bibliographiques
395, rue Wellington
Ottawa ON K1A 0N4
Canada

Your file Votre référence

Our file Notre référence

The author has granted a non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of this thesis in microform, paper or electronic formats.

L'auteur a accordé une licence non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de cette thèse sous la forme de microfiche/film, de reproduction sur papier ou sur format électronique.

The author retains ownership of the copyright in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.

L'auteur conserve la propriété du droit d'auteur qui protège cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

0-612-60072-6

Canada

University of Alberta

Library Release Form

Name of Author:	Valerie D. Guiltner
Title of Thesis:	Validation of the Child and Adolescent Social Perception Measure
Degree:	Master of Education
Year this Degree Granted:	2000

Permission is hereby granted to the University if Alberta Library to reproduce single copies of this thesis and to lend or sell such copies for private, scholarly, or scientific research purposes only.

The author reserves all other publication and other rights in association with the copyright in this thesis, and except as hereinbefore provided, neither the thesis nor any substantial portion thereof may be printed or otherwise reproduced in any material form whatever without the author's prior written permission.

Val Guiltner

Val Guiltner
210, 14811-51 Avenue
Edmonton, Alberta
T6H 5G4

Date: March 23/2000

University of Alberta

Faculty of Graduate Studies and Research

The undersigned certify that they have read, and recommended to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled Validation of the Child and Adolescent Social Perception Measure in partial fulfillment of the requirements for the degree of Master of Education.

Dr. Richard Sobsey (Ph.D.)

Dr. Joyce Magill-Evans (Ph.D.)

Dr. Todd Rogers (Ph.D.)

Date: March 22/2000

Abstract

The purpose of this validation study was to evaluate the Child and Adolescent Social Perception Measure (CASP). The CASP was designed to provide standardized information about children's ability to identify the emotions of others based on nonverbal cues. One hundred grade-five students were administered the CASP. The student's teachers completed the Walker-McConnell Scale of Social Competence and School Adjustment and the Academic Competence Subscale of the SSRS. There was no significant gender effect. A between group difference was significant for the low and average CASP score groups. Correlations among the CASP Emotion Score, social competence, and school-related skills were significant and positive. Correlations between the CASP Nonverbal Cues Score, social competence, and school-related skills were nonsignificant but positive. Valid inferences can be drawn from CASP scores for children with difficulty in the areas of social and school competence. The CASP Emotion Score is the best indicator of social-perception ability.

Acknowledgements

This research would not have been completed without the support and encouragement of many people. First of all I would like to thank my colleagues, Cyndie Koning, Anne Cameron-Sadava, and Kathy Manyk who helped me develop my research plan and who spent countless hours reading and editing on my behalf. I would also like to thank my advisor, Dick Sobsey who made this research experience a positive one by providing me with the advice and direction I needed while acknowledging my clinical expertise.

I would also like to thank those who worked on this research over the past year. Tamara Giles and Tammy Spezowka were stupendously organized and diligent in collecting the data, inputting the data, and checking and re-checking the data-base. Don Klinger and Crystal Mansley were invaluable in their willingness and ability to help me conquer the data analysis. Most importantly I would like to thank the children and teachers who gave time from their tight schedules to participate in this research.

Finally I would like to acknowledge some of my many emotional supports. Winston Young who believed in my ability and initiated school contacts on my behalf. For him this was a small favor, for me it provided credibility and an opportunity to accomplish what seemed at times, an insurmountable goal. My mom who never ever stops believing in me and whose love has provided me all the strength I will ever need. Most of all, Dawn who kept our home comfortable and provided endless amounts of encouragement, support, and patience.

Funding for this research was provided by a grant from the Glenrose Rehabilitation Hospital Research Fund.

Table of Contents

Chapter		Page
I.	Introduction	1
II.	Background and Related Literature	5
III.	Statement of the Purpose and Hypotheses	19
IV.	Methods	21
	Participants	21
	Measures	22
	Procedures	25
	Data Analysis	25
V.	Results	27
VI.	Discussion	35
References		43
Appendices		
	Appendix A: Information Sheets and Consent Forms	49

List of Tables

	Page
1. Hypothesized Correlation Matrix of Variables Related to the CASP	20
2. Means and Standard Deviations for Subtest Scores	27
3. Description of CASP scores for Total Sample (n = 100)	28
4. Number of Students Relative to the Mean on CASP Scores	28
5. Means and Standard Deviations for Subtest Scores for Low-CASP Emotion Score Group	30
6. Intercorrelations Between Variables for the Sample	31
7. Intercorrelations Between Variables for the Low CASP-Emotion Score Group	32

Chapter 1

Introduction

Social perception or nonverbal sensitivity is one aspect of social interaction. Social perception refers to an individual's ability to accurately perceive and interpret social situations (Cartelage, Stupay, & Kaczala, 1986). It involves a complex process that requires both sensory (i.e., vision, touch, hearing) mechanisms and mechanisms to accurately interpret verbal and non-verbal cues provided by social partners (Morrison & Bellack, 1981). One must be sensitive to not only what is said but also the manner in which it is expressed (e.g., tone of voice, facial expressions, gestures, and contextual cues).

That social-perception skills are important to determining the social success of specific social interactions and, more generally, the adaptation of the individual is apparent in the psychological literature (e.g., Cyker, 1992; Feldman, Philipott, & Custrini, 1991; Nowicki & Duke, 1992). For example, Parker and Asher (1987) suggest that children who have difficulty relating to others are at risk for later adjustment difficulties such as school drop-out, criminality, and psychopathology. Nowicki and Duke (1992) report that many children who do not fit in have trouble using nonverbal communication:

> These children frequently break the rules of nonverbal communication. They may stand too close to others, touch them inappropriately, or misunderstand and misinterpret friendly actions. These difficulties can lead to painful social rejection, especially when... the child has little or no idea that he or she is the source of the problem (Nowicki & Duke , 1992, p. 5).

Children and adolescents at a large psychiatric facility in Edmonton, Alberta, Canada are receiving group intervention focused on improving nonverbal communication skills. The inspiration for the development of the Child and Adolescent Social Perception Measure (CASP)(Magill-Evans, Koning, Manyk, & Cameron-Sadava, 1995) came from the need to measure change in the social-perception skills of these children or adolescents following intervention. Tools already available to measure social-perception skills in children were limited in the types of emotions portrayed and relied on nonverbal information presented separately (e.g., one sub-test measures receptive gestures, another measures receptive facial expression) without contextual information (Magill-Evans et al., 1995). The CASP consists of 10 short (19-40 seconds) unrelated videotaped scenes that depict children and adolescents in typical interactions. The CASP simulates the type of social interactions that children and adolescents would encounter in real life, provides contextual information, and presents multiple cues simultaneously. After watching each scene, the child is asked to make a judgement about the emotional state of the characters in the scene and to describe the nonverbal cues used to infer each emotion.

In the clinical setting the CASP's use has gradually evolved to become part of the assessment and diagnostic process of the multidisciplinary team. The CASP is currently being used to assess a variety of children (males and females, ages 6 to 12) who may or may not receive a formal psychiatric or psychosocial diagnosis but who exhibit social interaction difficulties. The intention is to determine whether a social-perception deficit exists that may help to explain these difficulties. The use of the CASP in this way was beyond the scope of previous validity studies and further validation is required to ensure proper use of the measure.

To date, the most thorough validity study of the CASP used an adolescent, male sample to examine the relationships between CASP scores and scores of constructs expected to be related to social-perception (general social skills, language skills, and internalizing and externalizing behavior)(Koning & Magill-Evans, in press). In addition, Koning and Magill-Evans (in press) demonstrated that the CASP could discriminate between adolescent boys with known social-perception deficits and those without social-perception problems. These studies were limited to boys, age 12-15 years, and compared boys with the diagnosis of Asperger's Disorder (n = 32) with a control group (n = 29).

Further validation of the CASP is necessary to ensure its proper use with both males and females as well as children under the age of twelve. In addition, since the CASP is being used to identify subtle difficulties in social-perception in children without known social-perception problems, it is necessary to examine the range of abilities in the non-clinical population and the association to constructs such as social competence. Nowicki and Duke (1994) propose that there is a continuum of how individuals interpret and use nonverbal signs. This implies that it may be possible to identify people along the continuum who exhibit strengths and weaknesses in the ability to interpret nonverbal social cues.

The present validation study was guided by the need to examine the results of the CASP with variables thought to be related to social-perception in elementary school-aged girls and boys. Three important variables considered to be associated with social-perception in this age group were social competence, school adjustment, and academic competence.

There is much literature linking social perception to social competence and popularity (e.g., Boyatzis & Satyaprasad, 1994; Custrini & Feldman, 1989; Nowicki & Duke, 1994; Spence, 1987). Generally speaking, those children with better social-perception skills are also more popular and have better social skills. Alternately, children who tend to misinterpret the nonverbal communications of others tend to be less popular with their peers. It is important to substantiate this association because unpopular children are more prone to develop adjustment problems and to become unpopular, maladjusted adults (Parker & Asher, 1987).

The link between academic competence/achievement, school adjustment, and social perception is also evident. Explanation of this link is often based on the assumption that "learning academic material is largely an interpersonal process for elementary-school children" (Nowicki & Duke, 1991, p. 387). When children misread teachers' and peers' nonverbal cues, negative reactions occur that make learning more problematic. Such negative interactions may lead to an association between social-perception abilities and low academic achievement (Nowicki & Duke, 1994).

In the present validation study the CASP was evaluated by examining its relationship to variables related to social perception (i.e., social competence, school adjustment, and academic competence) in elementary school-age girls and boys. Chapter 2 reviews literature pertinent to social perception and the relationship social perception shares with these variables in clinical and non-clinical groups. In addition, the measurement of social perception will be addressed and the effectiveness of social skills intervention will be briefly discussed.

Chapter 2

Background and Related Literature

Social Perception

Social perception or decoding of nonverbal social information refers to an individual's ability to accurately perceive and interpret social information. Nonverbal behavior has been shown to be a source of information about emotional states and attitudes that is reliable and readily available to social interactants (Feldman, Philippot, & Custrini, 1991). Emotional expressions contribute to the activation and regulation of feelings; communicate something about internal states and intentions; and evoke responses in others (Camras, Malatesta, & Izard, 1991). According to Nowicki and Duke (1992), decoding abilities lead to more appropriate empathic responding to other's emotions and, therefore, more effective social interactions.

Research pertaining to the development of social perception has appeared in the literature for at least the last 75 to 80 years. Georgina Strickland-Gates (1923) used photographed facial expressions with 458 children, age 3-14 years and demonstrated a gradual increase in the ability to interpret each picture with age. Many studies have replicated the finding that the ability to interpret facial expressions improves with age (e.g., Egan, Brown, Goonan, Goonan, & Celano, 1998; Harrigan, 1984; Odom & Lemond, 1972; Philippot & Feldman, 1990; Tremblay, Kirouac, & Dore, 1986). Similar results have been found with regard to gestures (e.g., Boone & Cunningham, 1998; Ekman & Friesen, 1969), vocal cues (e.g., Johnson, Emde, Scherer, & Klinnert, 1986), and context (e.g., Reichenbach & Masters, 1983; Wiggers & van Lieshout, 1985).

Research has produced mixed results regarding whether gender plays a role in social-perception accuracy. There appears to be little or no difference in the social-perception skills of young girls and boys. For example, Nowicki and Duke (1994) found no sex differences on nonverbal accuracy scores using 1001 subjects from the first through fifth grades. In addition, Boyatzis and Satyaprasad (1994) found no gender effect on the nonverbal task scores using 34 preschool subjects. However, differences do seem to emerge as children get older and enter adulthood. Generally speaking, females appear to be more skilled than males (e.g., Buck, 1980; Custrini & Feldman, 1989; Kirouac & Dore, 1985).

Cross-cultural comparisons of nonverbal communication have been researched extensively (see Feldman & Rime, 1991). Generally speaking, the spontaneous expressions of basic emotional states does seem to be uniform across cultures, but there are cultural differences in the display rules for specific emotions (Patterson, 1991). For example, when seated alone, college students in Japan and the United States exhibited very similar expressions to films. However, in the presence of a research assistant, the Japanese students masked their facial expressions much more than the U.S. students did (Patterson, 1991). In addition, Camras, Malatesta, and Izard (1991) refer to an expanse of literature demonstrating cross-cultural consistency in the labeling of a number of facial expressions according to their corresponding emotion. Consistency has been demonstrated in labeling posed and spontaneous expressions, in labeling both the primary and secondary blended emotions, and in judging the intensity of emotions (Ekman & O'Sullivan, 1991).

The literature available over the past 20 years substantiates the importance of social perception by linking it to factors such as social competence, popularity, and school

success. These factors have then been systematically associated with success in adulthood. For example, as will be demonstrated in the following paragraphs, children who have difficulty decoding nonverbal social information are more likely to experience poor peer relationships. Children with peer relationship difficulties may be at risk for dropping out of school, criminality, and psychopatholgy (Parker & Asher, 1987).

In order to discuss differences in social perception and its relationships with social competence or popularity and academic competence, the next section will consider research that compares clinical subjects labeled in some way as "disordered" with a typical group. The following section will address these same differences within the "normal" or non-clinical population.

Clinical versus Non-clinical Populations

Several investigators have attempted to identify potential differences between the nonverbal skills of "normal" subjects and subjects with psycho-educational difficulties or psychiatric disturbance. The majority of these studies were focussed primarily on the subjects' ability to decode various expressions of emotion. For example, children with learning disabilities (e.g., Dimitrovsky, Spector, Levy-Shiff, & Vakil, 1998), emotional and behavioral disorders (e.g., Walker & Leister, 1994), attention deficit-hyperactivity disorder (e.g., Singh, Ellis, Winton, Singh, Leung, & Oswald, 1998), and Asperger's Disorder (Koning & Magill-Evans, in press) have been shown to interpret nonverbal social cues more poorly than their non-clinical, normally developing peers.

In a previous validation study utilizing the Child and Adolescent Social Perception measure (CASP), Koning and Magill-Evans (in press) demonstrated significant differences between the ability of adolescent boys with Asperger's Disorder to accurately perceive

and interpret nonverbal cues among and a matched community group. Further differences were found between the Asperger's Disorder and the Community group on the number of friends, frequency of contact with friends, and social competence. In addition, Koning and Magill-Evans (in press) investigated the relationships between social perception and general social skills, expressive and receptive language, and internalizing and externalizing behaviors. Of importance to the present study are the correlations with general social skills that ranged between .34 and .63 (all significant) for the combined sample. This suggests that social perception may have an important role in the development or demonstration of social skills.

Koning and Magill-Evans (in press) also examined the relationship between social perception and IQ, as estimated by the vocabulary subtest of the WISC III. The correlations were low and nonsignificant (r = .13 - .16). This concurs with a review of 22 studies by Halberstadt and Hall (1980) who found a small positive correlation (median correlation = .18) between children's ability to decode nonverbal expressions of emotion and cognitive ability. This suggests that the construct of social perception is essentially unrelated to intelligence.

Another diagnostic group that has received some attention with regard to social perception are those with learning disabilities. Children with learning disabilities (LD) have been shown to have weaker social-perception skills than non-LD children matched on intelligence (e.g., Cyker, 1992; Stiliadis & Wiener, 1989). In addition, Cyker (1992) identified a significant difference in social competence and school adjustment between LD and non-LD children. Social perception's relationship to social competence in this population appears to be positive. For example, Stiliadis and Weiner (1989) demonstrated

a positive and significant relationship ($r = .39$, $p < .05$) between social perception and sociometric status.

As previously stated, there appears to be significant differences in the social-perception abilities in some clinical groups as compared to the non-clinical groups. These differences appear to be, to some extent, associated with social competence but not necessarily intelligence. The question arises as to whether similar associations can be observed in the non-clinical population among those who are marginal at managing their interpersonal lives and those who excel in social situations. According to Feldman, Philipott, and Custrini (1991), it appears likely that these associations can be observed. The following section will review the literature pertinent to these associations in the non-clinical population.

Non-Clinical Population

Many researchers have indicated that the ability to decode nonverbal cues is related to more positive social interaction among non-clinical groups of children (e.g., Custrini & Feldman, 1989; Rothenberg, 1970; Walden & Field, 1990). For example, in a study of 33 children age 9-13, Custrini and Feldman (1989) concluded that a high degree of understanding in the area of human facial expressiveness is associated with general social competence.

Researchers have frequently used peer status or popularity status as a measure of social competence (e.g., Boyatzis & Satyaprasad, 1994; Stiliadis & Wiener, 1989). A significant positive relationship between peer status and social perception has been consistently demonstrated (e.g., Edwards, Manstead & McDonald, 1984; Nowicki & Duke, 1994; Spence, 1987; Vosk, Forehand & Figueroa, 1983). In a study of 196 children

age 8-11 years, Edwards and colleagues (1984) demonstrated that high sociometric status children obtained significantly higher emotional recognition scores than low sociometric status children. Similarly, Vosk and colleagues (1983) compared 160 children's (grade 3 to 5) ability to identify emotions and found that accepted children correctly identified emotions more than rejected children. Monfries and Kafer (1987) divided children into three groups: neglected by peers, rejected by peers, and a control group of socially accepted children. The results indicated that the socially accepted children decoded expressions of emotion significantly better than rejected children, and that the decoding ability of neglected children fell between the two other groups. These research examples support the notion that a range in social-perception ability exists among normally developing children and that this range is associated with varying degrees of social competence and social acceptance.

Previous researchers have identified correlations between social perception and social competence or popularity that tend to be positive and moderate. Nowicki and Duke (1991) used the Facial Expressions and Tones of Voice subtests of the Diagnostic Analysis of Nonverbal Accuracy Scale (DANVA) to measure social perception and sociometric choice as a measure of popularity. They found a correlation of .27 for the Facial Expressions subtest for both liked and disliked children and .30 for the Tones of Voice subtest for both groups of children. Stiliadis and Wiener (1989) employed the Social Perception Behavior Rating Scale which was completed by the children's teacher's and a sociometric measure to indicate popularity. A correlation of .39 was found between these two variables. Finally, Koning and Magill-Evans (in press) used the CASP and the

Social Skills Rating System (parent, teacher, and student forms) and found correlations that ranged from .34 to .63.

Academic competence is defined by Gresham and Elliot (1990) as a teacher evaluation of achievement relative to other children within the classroom. School adjustment behavior includes adaptive social-behavioral competencies highly valued by teachers in the context of the classroom (Walker & McConnell, 1995). It does not include concepts typically considered in achievement. Rather, school adjustment refers to behaviors conducive to positive participation within the classroom setting (e.g., using free time appropriately, demonstrating good work habits). The logical assumption is that although these two constructs are not the same, they are highly related. Walker and McConnell (1995) reported a high correlation (.73-.80) between academic competence and school adjustment.

In a meta-analytic review of children's peer status, Newcomb, Bukowski, and Pattee (1993) demonstrated that popular children showed higher levels of sociability (e.g., social interaction, problem solving, communication skills) and cognitive abilities than average children and rejected children were less sociable and cognitively skilled than average children. Other researchers have also demonstrated the relationships between achievement and peer status or social competence. Merrel (1991) found that low achieving students (grades 3-6) have significant deficits in social competence and school behavioral adjustment compared to the general school population. In a study of 95 fifth and sixth graders of social and behavioral predictors on peer status, Maag, Vasa, Reid, and Torrey (1995) found a correlation of .60 between academic competence and social skills. Wentzel (1991) reported a correlation of .70 between academic competence and

socially responsible behavior. She suggests that socially responsible behavior reflects adherence to social rules and role expectations which may be most relevant to academic achievement.

Although school related skills and social competence have frequently been shown to be moderately related, social perception's role in academic competence and school adjustment is less tenable. Nowicki and Duke (1994) reported correlations ranging from .20 to .45 between nonverbal receptive skills and academic achievement. In a previous study these authors reported correlations that ranged between .32 and .48 for these same variables (Nowicki & Duke, 1991). They assumed that difficulties in processing nonverbal information would create anxiety that would interfere with the processing of information necessary for achievement in an academic setting (Nowicki & Duke, 1994).

Social Skills Intervention

Social skills are comprised of identifiable and definable patterns of social responses that contribute to the establishment of positive relationships and assist one in avoiding negative social consequences, such as rejection and isolation (Mathur & Rutherford, 1996). Whether social skills training is effective in improving specific skills over the short-term and the long-term, and whether these skills generalize into the naturalistic setting have been reviewed extensively (e.g., Beelman, Pfingston, & Losel, 1996; Forness & Kavale, 1996; Gresham, 1985; Hughes & Sullivan, 1988; Mathur, Kavale, Quinn, Forness, & Rutherford, 1998; Mathur & Rutherford, 1996; McIntosh, Vaughn, & Zaragoza, 1991; Quinn, Kavale, Mathur, Rutherford, & Forness, 1999). Generally speaking, these researchers have found that the effectiveness of social skills training efforts to date has been modest, at best. Specifically, two separate reviews by Quinn and colleagues (1999)

and Forness and Kavale (1996) demonstrated an effect size of about .2 (approximately 8 percentile ranks) for social skills training on a multitude of variables, including broad measures of prosocial skills, problem behaviors, and specific social behavior traits in children with emotional-behavioral disorders. However, Beelman and colleagues (1994) included a more general population in their review and reported an effect size of .47. Although these results are slightly more favorable, the support for social skill training is generally not well substantiated.

Researchers attempting to evaluate social skills intervention describe a variety of issues that makes investigating this topic difficult (e.g., Forness & Kavale, 1996; Mathur & Rutherford, 1996; Quinn, Kavale, Mathur, Rutherford, & Forness, 1999). They suggest that social skills training may be more effective than it appears, but the methodological issues related to accurate measurement preclude finding more substantive evidence. The issues include: differences in defining the construct of social skills; lack of established validity of social skills training packages; and constraints imposed by the formal research process as opposed to the flexibility afforded in the clinical setting. In addition, Mathur and Rutherford (1996) refer to the possibility that measures used to assess the efficacy of social skills training may not be assessing the components of social competence that were initially targeted. In other words, there may be a discrepancy between the skills being assessed and the skills being taught. For example, conversational and problem solving skills are often targeted for social skills instruction, while measures of social competence or popularity are used to assess changes in social behavior. These measures may provide a good estimate of overall social behavior change, but may not be sensitive in detecting changes in the specific social skills that are taught.

Although the impact of social skills training on general social competence remains questionable there appears to be some support for the need to measure change in specific social skills being targeted during intervention. The CASP was originally developed to meet this need. With the development of appropriate measurement tools the efficacy of social skills training may be better substantiated. Quinn and colleagues (1999, p. 62) warn against the elimination of social skills training and suggest that "the cost of not teaching social skills is extremely high."

Measurement of Social Perception

As a result of an extensive review of the literature, Magill-Evans and colleagues (1995) developed the following criteria to guide the development of the Child and Adolescent Social Perception Measure (CASP). According to these researchers, a good measure of social perception should:

1. Reflect the complexity of interactions by assessing the ability to infer emotions from facial expressions, tone of voice, gestures, postures, and situational cues occurring simultaneously;
2. Require children to generate responses rather than choosing from a list of possible answers;
3. Measure the type and number of cues that children recall;
4. Portray types of situations children and adolescents commonly encounter;
5. Be suitable for use with children ages 6 – 15 without floor or ceiling effects;
6. Be relatively quick (30 – 45 minutes) and easy to administer;
7. Have standardized scoring and provide reliability and validity information; and
8. Be sensitive to change.

Prior to the development of the CASP in 1992, the Profile of Nonverbal Sensitivity (PONS) (Rosenthal, Hall, Archer, Di Matteo, & Rogers, 1979) was the only measure found with published information on its use with children. The PONS is a black-and-white film consisting of 220 2-second audio and/or visual sequences. In each segment, a young woman enacts various affective situations using different channels of nonverbal communication. The subject chooses one of two sentences that best describes the affect expressed in the segment. The PONS uses only photographed facial expressions, situations, and electronically altered audio input (this obscures the content of the speech while attempting to retain the intonation) presented separately and without contextual information. Other measures that have been used with children have also failed to consider the impact of contextual information or have attempted to consider only one or two channels of information such as photographed facial expressions and electronically altered audio-tapes (Pictures of Facial Affect, Ekman, 1976; Communication and Reception of Affect Test, Buck, 1976).

Since 1992, two measures of constructs related to social perception have been developed for use with children. The Diagnostic Analysis of Nonverbal Accuracy Scale (DANVA) (Nowicki & Duke, 1994) and the Minnesota Test of Affective Processing (MNTAP) (Shapiro, Hughs, August, & Bloomquist, 1993), like the CASP, were designed to measure individual differences in the ability to receive nonverbal social information. The DANVA assesses receptive and expressive nonverbal communication skills. The test is shorter than the children's version of the PONS and is designed as a screening instrument for children between the ages of six and ten. The receptive test consists of four subtests which measure a child's ability to accurately interpret four emotions: happy, sad, angry,

and fearful. All four subtests use a child model to represent the different emotions. Three subtests include slides of facial expression, postures, and gesture. The fourth subtest includes a tape of a child's voice repeating a neutral sentence in different tones. The DANVA does not provide information about the interrelationships of the four components of nonverbal communication to overall decoding of nonverbal communication. The MNTAP also relies on nonverbal information presented separately without contextual information and is limited in the types of emotions portrayed.

The most important criticism of these measures is that they do not capture the real life experience of children and adolescents as they interact socially. These measures are typically limited in the range of emotions portrayed, the nonverbal cues are presented separately, and often without contextual information.

Child and Adolescent Social Perception Measure

The CASP's development was guided by the need to examine social perception deficits in a manner that would simulate the type of social interactions children and adolescents would encounter in real life. This included providing contextual information and presenting multiple cues simultaneously. The CASP consists of 10 short (19-40 seconds) unrelated videotaped scenes that depict children and adolescents in typical interactions. The scenes have been audio-filtered so that meaning must be derived from nonverbal and situational cues. The child is required to generate answers to questions about how the people in the scene are feeling and to identify the different cues, such as facial expression and gesture, which were used to infer the emotion. Norms based on age are available and inter-rater reliability, internal consistency, and test-retest reliability have been established. Validity has been addressed by examining the correlation between the

CASP and a measure of expressive vocabulary (non-significant correlation). Factor analysis has determined that the CASP measures one underlying dimension, social perception; and, more recently, the discriminant validity and convergent/divergent validity of the CASP has been studied with an adolescent male sample. Further information pertaining to the CASP will be presented in Chapter 4.

Conclusion

The role of social-perception in the development of social competence and success in school has been demonstrated in the literature over the last two decades. A range or continuum of social- perception skills has been clearly identified when clinical groups are compared to their normally developing peers. In addition, there appears to be a range in social-perception skills among those who have not been identified clinically and appear to be developing normally. These differences in social-perception ability have been associated with differences in general social competence, popularity, academic achievement, and appropriate school behaviors.

Demonstrating that inferences drawn from CASP score are valid for normally developing children is an important endeavor. This is because the CASP is currently being used in the clinical setting to assess children pre-diagnostically who exhibit social interaction difficulties to determine whether a social perception deficit exists that may help to explain these problems. Demonstrating similar associations among CASP scores and measures of social competence and school-related variables as identified by other researchers will strengthen inferences drawn from test scores. In addition, there is a need to have a valid social perception measure for the purpose of demonstrating improvement

in social perception skills following intervention. In the following chapter the purpose of this study will be reviewed and the hypotheses presented.

Chapter 3

Statement of the Purpose and Hypotheses

The theoretical basis for the development of the CASP is drawn from the literature that examines social interaction from the framework of social processing and social performance (Doble & Magill-Evans, 1992). Social perception is defined within this framework as the ability to decode cues from multiple sources within a particular context. Recognition that this ability is an inherent component of social interaction implies that children experiencing social deficits may have difficulties not only in the area of social performance but also in the area of social perception. In a previous validity study the relationships between social perception, social skills, and general social competence were confirmed (Koning & Magill-Evans, in press). This study used a clinical group of adolescent boys with known social perception deficits. An important question to be answered is whether valid inferences can be drawn from CASP scores when identifying subtle social perception deficits that may be associated with social interaction deficits in children who have not been previously identified with deficits in this area.

This validation study was conducted to evaluate the CASP by examining its relationship to variables thought to be related to social perception within a non-clinical group. To meet this objective, measures of social competence, school adjustment, and academic competence were completed and the data analyzed. Literature on the relationship between social perception and these variables led to the expected correlations indicated in the following matrix (shown in Table 1). It is this matrix that was hypothesized and was tested. High (H) correlations were expected to be above .75;

moderate (M) correlations were expected to range between .25 and .75; and low (L) correlations were expected to be below .25. As shown, the correlations were hypothesized to be high or moderate.

Table 1

Hypothesized Correlation Matrix of Variables Related to CASP

Variable	CASP ES	CASP NCS	T-PB	P-PB	S-AB	AC
CASP ES (Emotion Score)	———					
CASP NCS (Nonverbal Cue Score)	H	———				
T-PB (Teacher-Preferred Social Behavior)	M	M	———			
P-PB (Peer-Preferred Social Behavior)	M	M	M	———		
S-AB (School Adjustment Behavior)	M	M	H	H	———	
AC (Academic Competence)	M	M	M	M	H	———

Chapter 4

Methods

Participants

Grade five students (n=100) from 8 public schools (16 classrooms) in a large Canadian urban center were recruited. This group of students was selected for the study for two reasons. Firstly, although norms are available for children as young as 6 years, therapists using the CASP on a regular basis are suspicious of its usefulness under age 9 due to the relatively extensive language requirements. Typically, grade five students in Canada are 10 and 11 years old. Secondly, large portions of the children in the researchers clinical setting referred for assessment or intervention due to social interaction difficulties are in this age range. Studying this age group more extensively then has practical advantages.

The child, the parent or guardian, and the teacher completed consent forms prior to inclusion in the study. Consent forms were not distributed to children who were funded under the category of English as a Second Language or as a special needs student. Approximately 29% of those invited agreed to participate in the study. The participants' mean age was 10.69 years (range = 10.03-11.99 years). Seventy-five were Caucasian and twenty-five were non-Caucasian. Sixty-one were female and thirty-nine were male. Schools were selected for inclusion to provide a wide range of socioecomomic status groups although this was not formally measured.

Sample size was determined by inspecting the confidence intervals around the sample correlation coefficient r on the population correlation coefficient $\rho=0$ for $n = 3, 4,$

...., 400. A sample of at least 100 was required to demonstrate that a relationship exists between variables with a reasonable degree of confidence.

Measures

Child and Adolescent Social Perception measure (CASP)(Magill-Evans et al., 1995). The CASP is an individually administered measure that takes approximately 40 minutes to complete. A child is asked to view 10 short (19-40 seconds) unrelated scenes which depict children and adolescents in typical social situations. The scenes have been audio-filtered so that meaning must be derived from nonverbal and situational cues. The child is then asked what the people in the scene were feeling and how they could tell the person was feeling that way. The child's answers are written down by the tester and compared to an answer key which is then used to assign points based on how accurately the child inferred the emotion and identified which cues were used to infer it. Completion of the measure yields two scores: the total emotion score (ES) reflects the ability of the child to generate answers to questions about how the people in the scene are feeling; the total nonverbal cue score (NCS) reflects the child's ability to identify the different cues, such as facial expression and gesture, which are used to infer the emotion. In the normative study, ES scores correlated with nonverbal cue scores at .88. Significant main effects were found for age and gender, with older children scoring significantly better than younger children and girls scoring better than boys. Acceptable levels of internal consistency (r=.88, .92), test-retest reliability (r=.83, .87), and inter-rater reliability (r=.95) were reported. The CASP manual contains descriptive information on test scores for non-clinical children between the ages of 6 and 15, inclusive. Clinicians utilizing the CASP on a regular basis are presently collecting CASP data specific to a variety of psychiatric

diagnostic groups (e.g., childhood schizophrenia, depression, anxiety disorder) but this information is not yet available for publishing.

Walker-McConnell Scale of Social Competence and School Adjustment: Elementary Version (SSCSA) (Walker & McConnell, 1995). The SSCSA is a 43 item, 5-point rating scale (1="never occurs"...; 5="frequently occurs") for teachers that reflect adaptive social-behavioral competencies within the classroom environment. The scale yields standard scores on three sub-scales as well as a total score, which is a composite of the three sub-scales. Sub-scale 1,Teacher-preferred Social Behaviors, includes 16 items measuring peer-related social behaviors highly valued by teachers and reflect the teacher's concerns for empathy, sensitivity, self-restraint and cooperative, socially mature peer relationships (e.g., "Is considerate of the feelings of others," " Is sensitive to the needs of others"). The raw mean score and standard deviation for Teacher-preferred Social Behaviors are 58 and 14. Sub-scale 2, Peer-preferred Social Behaviors, includes 17 items measuring peer related social behaviors highly valued by other children, and reflect peer values involving social relationships and dynamics and skills in free play settings (e.g., "Spends recess and free time interacting with peers," "Invites peers to play or share activities"). The raw mean score and standard deviation for Peer-preferred Social Behaviors are 63 and 14. Sub-scale 3, School Adjustment Behaviors, includes 10 items reflecting social-behavior competencies especially important in academic instructional settings, such as having good work and study habits, following academic instructions, and behaving in ways conducive to classroom management (e.g., "Attends to assigned tasks," "Displays independent study skills"). The raw mean score and standard deviation for School Adjustment Behaviors are 39 and 10.

The manual contains extensive information on the standardization data and psychometric properties of the SSCSA. The scale was standardized on a group of 1800 elementary age students representing a wide geographic (U.S.), socioeconomic, ethnic, and academic diversity. Test-retest reliability for the total score was .83, for Sub-scale 1 was .86, for Sub-scale 2 was .80, and for Sub-scale 3 was .67. Internal consistency estimates range from .95-.97. Validity of the scale was assessed using a variety of procedures. The SSCSA was found to differentiate among groups of normal students and those with behavior and learning problems; to significantly correlate with sociometric ratings and academic achievement measures; and to correlate strongly with evaluative comments of subjects by their peers and teachers.

Academic Competence Sub-scale (Gresham & Elliott, 1990).

Academic Competence Sub-scale is a component of the Social Skills Rating System (SSRS). It is a nine-item, 5-point teacher rating scale of academic performance. Each of the items is designed to assess a different aspect of academic achievement. On the first three items, teachers rate a student's overall academic performance, reading, and mathematics relative to other classmates. The next two items assess reading and mathematics relative to grade-level expectations. The final four items assess other factors contributing to academic performance such as parental encouragement, motivation, classroom behavior, and intellectual functioning relative to classmates. The raw score means and standard deviations for grade five students are 35.8 and 8.6 for females and 31.6 and 8.3 for males. The manual reports internal consistency estimates ranging from .95-.96. Test-retest reliability for the sub-scale score was .93. Gresham, Reschly, and Carey (1987) found that the Academic Competence Sub-scale had correlations ranging

from .43 to .72 with the Peabody Individual Achievement Test and the Wechsler Intelligence Test for Children-Revised.

Procedures

Two research assistants achieved inter-rater reliability of .80 or greater prior to administering the CASP. Point-by-point agreement was used to establish reliability in all cases. The research assistants trained initially using the CASP training video and their responses were checked against a scoring key. Next they co-tested clinical cases with a clinical expert until inter-rater reliability of at least .80 was achieved. Inter-rater reliability was then established between research assistants using non-clinical volunteers. They co-tested cases until they achieved inter-rater reliability of at least .80 on 3 consecutive cases. Inter-rater agreement was checked periodically during the course of the study and was .92 for the Emotion Score and .94 for the Nonverbal Cue Score on 11% of the cases. The student's homeroom teachers completed SSCSA and the Academic Competence Sub-scale on the children that were assessed on a particular day. The data set was complete for all 100 participants.

The research assistants entered all data into computer using the SPSS 9.0 for Windows software package for the students that they had tested. Once all data entry was complete they verified their own data entry by checking each item entered and comparing it to the original answer sheets. The research assistants then verified each other's data entry using the same process.

Data Analysis

A MANOVA was executed to determine whether or not a significant difference existed based on gender for sub-test scores. If there appeared to be a gender effect present

upon initial data analysis then the remainder of the statistical analysis would be computed for boys and girls separately. In the absence of a significant difference the data would be pooled for further analysis. Correlations would then be computed and compared to the hypothesized matrix (Table 1). Following this, the data would be reorganized into low, medium, and high groups based on the CASP Emotion Score standard scores. MANOVA was be executed to examine differences between groups based on the remaining sub-test scores.

Chapter 5

Results

The means and standard deviations for males, females and the total sample for all test scores are reported in Table 2. MANOVA was calculated to determine whether a difference existed on test scores based on gender. A significant difference was not found (F (1, 98) = 1.75, p > .05) and therefore all data were pooled for further analysis.

Table 2

Means and Standard Deviations for Subtest Scores

Variable	M (SD)		
	Males N = 39	Females N = 61	Total N = 100
Emotion Score	33.13 (8.37)	36.28 (7.95)	35.05 (8.22)
Nonverbal Cue Score	43.44 (9.96)	45.57 (10.84)	44.74 (10.51)
Teacher-Preferred Behaviors	56.56 (13.89)	63.66 (15.11)	60.91 (14.98)
Peer-Preferred Behaviors	63.00 (14.44)	69.54 (15.21)	66.99 (15.18)
School Adjustment Behaviors	35.49 (10.44)	41.15 (9.69)	38.94 (10.32)
Academic Competence	30.13 (9.85	33.61 (9.09)	32.25 (9.50)

Table 3 contains a description of CASP scores for the total sample including the range of raw scores and the total possible score. Magill-Evans and colleagues (1995) reported similar scores for 10 and 11 year olds in the normative sample (n=44) used in the development of the CASP (i.e., means and standard deviations for Emotion Score = 35.3

(8.7); Nonverbal Cues Score = 45.0 (11.02)). The number of students in categories relative to the CASP score means are reported in Table 4. Emotion Scores are normally distributed while the Nonverbal Cues Score are skewed to the right with nearly equal numbers in the average and high score groups. The demonstration of a wide range in scores for normally developing grade five students is clearly evident. Whether these scores are important in terms of measures of social competence, school adjustment, and academic competence will be examined next.

Table 3

Description of CASP Scores for Total Sample (n = 100)

CASP	Lower Range	Upper Range	M(SD)	Total Score Possible
Emotion Score	13	54	35.05(8.22)	86
Nonverbal Cues Score	23	77	44.74(10.51)	135

Table 4

Number of Students Relative to the Mean on CASP Scores

CASP	Low (Less than −1.00 SD)	Average (-1.00 SD to +1.00 SD)	High (Greater than +1.00 SD)
Emotion Score	18	67	15
Nonverbal Cues Score	15	44	41

Pearson correlations were used to examine the relationship among test scores and to compare to the hypothesized matrix. These correlations are reported in Table 6. The correlation between CASP Emotion Score and Nonverbal Cue Score was high as anticipated, $r = .79$, $p < .01$. Interestingly, this is identical to that found by Koning and Magill-Evans (in press) who utilized an adolescent male sample. Magill-Evans and colleagues (1995) suggested that the strong correlation between the Emotion Score and the Nonverbal Cues Score may indicate that only one score is required. The results of this study appear to support this premise.

The CASP Emotion Score correlated with the Teacher-Preferred Behaviors significantly and in the expected direction but not as highly as anticipated (CASP ES with T-PB, $r = .20$, $p < .05$) and with Peer-Preferred Behaviors subscales significantly and as expected (CASP with P-PB, $r = .27$, $p < .01$). The correlation between CASP Emotion Score, Academic Competence and School Adjustment Behaviors was also positive, significant, and moderate, as anticipated, $r = .37$, $p < .01$, $r = .32$, $p < .01$.

Correlations between the CASP Nonverbal Cues Score and SSCSA sub-scales were lower than expected. Significant correlations were found for CASP Nonverbal Cues Score with Peer-Preferred Behaviors, $r = .21$, $p < .05$ and School Adjustment Behaviors, $r = .24$, $p < .01$. The correlation between CASP Nonverbal Cues Score and Academic Competence was as expected, $r = .31$, $p \leq .01$.

Correlations between subscales of the SSCSA ranged from $r = .71$- $.81$, $p < .01$. These are consistent with the intercorrelations reported in the manual which ranged from $r = .67$ - $.74$, $p < .001$. Correlations between the SSCSA subscales and the Academic Competence subscale were as anticipated and ranged from $r = .62$- $.84$, $p < .01$.

Visual inspection of the data set appeared to suggest that a stronger relationship might exist between low CASP-Emotion Scores and the other variables. To test this possibility Pearson correlations were recomputed selecting out the CASP-ES low-score group. The CASP-ES low score group was defined as those with CASP-ES standard scores less than +1.00 (n=18)(refer to Table 4). The means and standard deviations for males, females, and the total CASP-ES low-score group are reported in Table 5. Due to the smaller sample size and, therefore the narrower range in scores, the power of the study is weakened and the correlations are expected to reduce. Interestingly, the only correlation that reduced considerably was between CASP-ES and CASP-NCS, $r = .50$, $p < .05$. All other correlations increased with the exception of Academic Competence with School-Adjustment Behaviors, which stayed the same and School-Adjustment Behaviors with CASP-Nonverbal Cues Score, which decreased .02 (see Table 7).

Table 5

Means and Standard Deviations for Subtest Scores for Low-CASP-Emotion Score Group

Variable	M (SD)		
	Males N = 11	Females N = 7	Total N = 18
Nonverbal Cue Score	33.27 (6.68)	31.29 (6.37)	32.50 (6.45)
Teacher-Preferred Behaviors	53.82 (12.60)	54.71 (24.29)	54.17 (17.37)
Peer-Preferred Behaviors	55.55 (15.70)	60.00 (20.70)	57.28 (17.36)
School Adjustment Behaviors	33.36 (11.23)	34.00 (14.28)	33.61 (12.09)
Academic Competence	25.64 (11.21)	27.14 (10.46)	26.22 (6.45)

Table 6

Intercorrelations Between Variables for the Sample N=100

	CASP ES	CASP NCS	T-PB	P-PB	S-AB	AC
CASP ES (Emotion Score)	1.00					
CASP NCS (Nonverbal Cue Score) (Hypothesized/Actual)	.79** (H/H)	1.00				
T-PB (Teacher Preferred Behaviors)	.20* (M/L)	.11 (M/L)	1.00			
P-PB (Peer Preferred Behaviors)	.27** (M/M)	.21* (M/L)	.81** (H/H)	1.00		
S-AB (School Adjustment Behaviors)	.32** (M/M)	.24** (M/L)	.78** (H/H)	.71** (H/M)	1.00	
AC (Academic Competence)	.37** (M/M)	.31** (M/M)	.65** (M/M)	.62** (M/M)	.84** (H/H)	1.00

**p < .01, 1-tailed. *p < .05, 1-tailed.

Table 7

Intercorrelations Between Variables for the Low CASP-Emotion Score Group

	CASP ES	CASP NCS	T-PB	P-PB	S-AB	AC
CASP ES (Emotion Score)	1.00					
CASP NCS (Nonverbal Cue Score) (Hypothesized/Actual)	.41* (H/M)	1.00				
T-PB (Teacher Preferred Behaviors)	.44* (M/M)	.13 (M/L)	1.00			
P-PB (Peer Preferred Behaviors)	.52* (M/M)	.35 (M/M)	.87** (H/H)	1.00		
S-AB (School Adjustment Behaviors)	.53* (M/M)	.22 (M/L)	.90** (H/H)	.89** (H/H)	1.00	
AC (Academic Competence)	.54* (M/M)	.32 (M/M)	.69** (M/M)	.86** (M/H)	.84** (H/H)	1.00

**$p < .01$, 1-tailed. *$p < .05$, 1-tailed.

The above findings suggest the possibility that a difference may exist between children who receive a low CASP Emotion Score and those who score average or above average. To test this possibility all children were placed into one of three groups based on their CASP Emotion Score: Low ($z < -1.00$); Average ($z = -1.00$- $+1.00$); High ($z > +1.00$)(refer to Table 4). MANOVA was calculated to determine whether a difference existed between these groups based on the remaining test score means (i.e., Teacher-Preferred Behaviors, Peer-Preferred Behaviors, School-Adjustment Behaviors, and Academic Competence). A difference between groups was identified, $F(2, 97) = 2.05$, $p < .05$. Univariate tests indicated a significant difference between groups for Peer-Preferred Behaviors, $F(2, 97) = 4.93$, $p < .01$, School Adjustment Behaviors, $F(2, 97) = 3.30$, $p < .05$, and Academic Competence, $F(2, 97) = 4.95$, $p < .01$. Post hoc tests using Bonferroni's procedure indicated a significant difference between the Low and the Average group for Peer-Preferred Behaviors ($p < .01$) and Academic Competence ($p < .05$). There was no significant difference between the Average group and the High group on any measure ($p > .05$). A significant difference between groups was not found for School-Adjustment Behaviors.

In summary, the hypothesized correlations between the CASP Emotion Score and Peer-Preferred Behaviors, School Adjustment Behaviors, and Academic Competence agreed with the findings of this study. The correlation between the CASP Emotion Score and Teacher-Preferred Behaviors was lower than hypothesized. When recalculated for the CASP ES low-score group all hypotheses pertaining to the CASP Emotion Score were met.

The correlations between the CASP Nonverbal Cues Score and the other measures were lower than hypothesized with the exception of Academic Competence which agreed with the hypothesis. When recalculated for the CASP ES low-score group, Peer-Preferred Behaviors reached agreement with the hypothesis as well.

A between group difference was found for the group of children who received a low CASP Emotion Score and those scoring at least average.

Chapter 6

Discussion

The purpose of this validation study was to evaluate the Child and Adolescent Social Perception measure (CASP) for use with elementary school-age children who have not been previously identified with deficits in this area. To fulfill this purpose the relationships among social perception, as measured by the CASP, social competence and school adjustment, and academic competence were examined.

This discussion will begin with an examination of the performance of the study group on the CASP. Next the relationships among CASP scores, social competence variables, and school success will be discussed. These relationships will be examined when calculated for the group of children who performed poorly on the CASP. Following these discussions, implications for the use of the CASP will be addressed along with study limitations and suggestions for further research.

In general, the results of this study enhance the validity evidence for the CASP by demonstrating positive and significant relationships between social perception, social competence, and academic competence in children in grade five. In addition, the notion suggested by Nowicki and Duke (1994) that it may be possible to identify people along the continuum who exhibit strengths and weaknesses in the ability to interpret nonverbal social cues is also supported.

The CASP Emotion Score appears to be more closely related to the measures of social interaction and school related skills than is the CASP Nonverbal Cue Score. There are two possible reasons for this occurrence. Firstly, the Nonverbal Cue Score is to some extent dependent upon the Emotion Score. Only in the instance that the child provides a

response for the emotion are they asked to expound upon the nonverbal cues. Therefore, the child may have perceived the nonverbal cues and not had an opportunity to report them. Secondly, children who could accurately label the emotions may have had difficulty verbally expressing the nonverbal cues or may have used the cues intuitively but could not, or did not label them specifically. These questions of reporting opportunity, expressive language, and intuitive awareness have also been identified in the clinical setting. Clinicians who use the CASP on a regular basis have raised concerns about the usefulness of the Nonverbal Cue Score due to the "feeling" that the child might know more than they are able to impart in the testing situation. On the other hand, in some instances it is important and helpful to obtain a description of the types of cues children are attending to, or not attending to, and what inferences they are drawing from these cues, particularly for children who are having difficulty. Clinicians are cautioned against using the CASP at all for children with severely limited verbal skills.

At the present time it appears that the Emotion Score is more useful for determining whether social-perception deficits exist. The Nonverbal Cues Score may provide some useful clinical information about how children read and interpret nonverbal communication. Of course, recognizing and labeling social cues is substantially different from spontaneously reacting to those nonverbal cues in a way that is positive to social interaction. This is a separate but very important clinical and research quandary.

Since the purpose of this research did not include the examination of the specific nonverbal cues used to infer the emotion, and in keeping with the suggestion that only one score may be required, and because the Nonverbal Cue Score is dependent on the

Emotion Score, the remainder of this discussion will focus on the Emotion Score and its relationship to the other variables.

Social perception as reflected by the CASP Emotion Score appears to have a moderate relationship with behaviors that reflect social competence among peers. Although this concept of peer-preferred behaviors was evaluated from the perspective of the teacher, the result is consistent with other researchers who used sociometric status as a measure of social competence (e.g., Nowicki & Duke, 1991; Stiliadis & Wiener, 1989). Social perception's relationship with teacher-preferred social behaviors was slightly lower than anticipated. This may reflect values held by classroom teachers (e.g., listening, accepting limits) that have less in common with social perception than behaviors that achieve success in peer groups (e.g., complimenting others, maintaining conversations). An additional explanation for relatively low correlations is that social perception is only one factor contributing to social competence. For children who have good social perception skills, there may be other factors interfering with social functioning (social problem solving, enactment skills, empathy). In other words, children with poor social perception skills are more likely to exhibit poor social behaviors, but children with adequate social perception skills may also exhibit poor social behaviors. This implies that social perception is a necessary component for successful social-behavioral adjustment but not in and of itself, sufficient. The increase of the correlations between social perception and the social behavioral variables, when computed for children receiving a low CASP Emotion Score, supports this explanation. Theoretically, the correlations should have decreased due to the smaller sample size and, therefore, a narrower range in scores. That these correlations increased suggests that the relationship between social perception and

social competence is stronger for children with poor social perception skills. Further support for this explanation was the occurrence of a significant difference between the CASP emotion score-low group and the other groups. This finding suggests that children scoring poorly on measures of social perception are systematically different from children who score average or above average. This is important because professionals can be more confident that social perception deficits are contributing adversely to children's social interactions and this skill can be targeted specifically during therapy. However, children who are performing well on the CASP may require an alternate focus of intervention.

As expected moderate relationships between CASP scores and school-related variables were found. As suggested by Nowicki and Duke (1994) difficulties in processing nonverbal information may invoke anxiety in the child which interferes further with their ability to process information in the academic setting. Alternately, children who have difficulty perceiving nonverbal information may miss important details with regard to the instruction provided by teachers. Thirdly, some of the skills required in the school setting (e.g. attention, concentration, short-term memory, verbal expression) may be closely related to those required to be successful at perceiving, interpreting, and responding to nonverbal information.

Limitations of the Study

One general limitation of this study lies in the difficulty in operationalizing and measuring constructs such as social competence and academic competence. The fact that these are not unitary constructs makes it difficult to compare and contrast findings across studies.

A second limitation concerns the use of rating scales. Although they tend to be quick and practical in a climate of intense stress and heavy workloads, they tend to be limited in the amount of information that can be gained. In this case it may have been more revealing and perhaps more beneficial to gain some anecdotal knowledge about how children are managing in the classroom.

A third limitation relates to the method of collecting information pertaining to peer-preferred social behaviors from the perspective of the teacher. Although the scale appears to solicit information that would seem important to peers there is no way of knowing with some certainty unless some format was employed to ask them themselves.

A fourth limitation concerns the method of selecting students for participation. One concern is that as a result of the voluntary process there may be a difference among those who volunteer as compared to the general population on the attributes that were studied. For example, parents who are concerned about their child's social-perception ability may have been more likely to sign consent forms. They may have been hopeful that their child would be identified as requiring intervention by participating in this study. This may have exaggerated the difference between the group of children scoring low on the CASP and those scoring at least average. An assumption was made that those who were currently attending a public school were "non-clinical" individuals. This may or may not have been true for all cases. Secondly, information on socioeconomic status was not collected for the purposes of this study. Consequently, there is no way of knowing if socioeconomic status was a factor that influenced the participation rate or the effect of this on social-perception ability and social competence. Finally, because this study included

only students in grade five, caution is required when generalizing results to other age groups.

A fifth limitation relates to the statistical analysis used to determine whether or not a difference occurred on test scores based on gender. A relatively conservative test (i.e., MANOVA) was used that indicated no significant difference. However, the argument could be made that a more liberal test (e.g., ANOVA) is more appropriate. The chance of finding a difference calculating successive ANOVA's would be more likely. Finding differences on social attributes between girls and boys is perhaps, more in line with what would be anticipated. Additionally, for the purposes of this study, the alpha level was set at .05 to control for Type I errors. This could also be considered conservative. It may be argued that the Type II error (not finding a difference when a difference truly exists) is the more important error to control for in this study. Future researchers may want to consider an alpha level of at least 0.10.

Conclusions

Social perception as measured by the CASP appears to be associated with social competence and school related skills for all children but particularly for those who score poorly on the CASP. The Emotion Score appears to be a much stronger variable in terms of its association. Children who receive a low Emotion Score are likely to be having social interaction problems as well but those problems are certainly not limited to those with social perception deficits. This study also supports the notion that social perception is related to academic achievement and, perhaps, other skills needed in the school setting.

These findings enhance the validity of the inferences drawn from the CASP by increasing our confidence in its ability to identify social perception deficits in children who may be experiencing social interaction difficulties as a result of this limitation.

Implications for Clinicians

1. This validation study supports the notion that the CASP is a useful tool for measuring social perception in children, aged 10-12 years.

2. Children who score poorly on the CASP are also likely to be experiencing social interaction difficulties. However, children who perform well on the CASP need to be considered for other problem sources (e.g., social problem solving, anger management) when experiencing social interaction difficulties.

3. The CASP Emotion Score appears to be the best indicator of social-perception ability. Although the Nonverbal Cues Score may provide interesting information about a child's use of different types of cues, their interaction style, attention, and expressive language, it is not necessarily a good measure of their social-perception skills.

4. The CASP is not intended to be a screening tool. It is most likely to be useful in a clinical setting as part of a comprehensive assessment process.

5. Social-perception ability appears to be significantly related to academic achievement. Clinicians identifying social-perception deficits in children are advised to address this issue with classroom teachers.

Implications for Future Research

1. The CASP appears to be an adequate measure of social perception but its usefulness for measuring change in social-perception skills following intervention requires further investigation.

2. Future research pertaining to the CASP may be best directed at children who are expected to be experiencing social perception deficits because the relationship between social perception, social competence, and school success appears to be more tenable for children with poor social perception.

3. Further research is required to determine whether social-perception training has an impact on general social competence or improvement in popularity status.

4. Researchers investigating social perception's effect on peer social interaction or popularity may want to gather information directly from the children themselves, as opposed to indirectly through teachers or parents.

5. A final point regarding future research issues pertains to the difference between recognizing and labeling social cues, and spontaneously reacting to those nonverbal cues in a way that is positive to social interaction. The question of "demonstrating" the ability versus "using" the ability is a very necessary and important question that has both measurement and treatment implications.

References

Beelman, A., Pfingsten, U., & Losel, F. (1994). Effects of training social competence in children: A meta-analysis of recent evaluation studies. Journal of Clinical Child Psychology, 23(3), 260-271.

Boone, R.T., & Cunningham, J.G. (1998). Children's decoding of emotion in expressive body movement: The development of cue attainment. Developmental Psychology, 34(5), 1007-1016.

Boyatzis, C., & Satyaprasad, C. (1994). Children's facial and gestural decoding and encoding: relations between skills and with popularity. Journal of Nonverbal Behavior, 18(1), 37-55.

Buck, R. (1976). A test of nonverbal receiving ability: Preliminary studies. Human Communication Research, 6, 47-57.

Buck, R. (1980). Nonverbal behavior and the theory of emotion: The facial feedback hypothesis. Journal of Personality and Social Psychology, 38, 811-824.

Camras, L.A., Malatesta, C., & Izard, C.E. (1991). Development of facial expressions in infancy. In R. S. Feldman & B. Rime (Eds.), Fundamentals of nonverbal behavior (pp. 73-105). New York: Cambridge University Press.

Cartelage, G., Stupay, D., & Kaczala, C. (1986). Social skills and social perception of LD and nonhandicapped elementary-school students. Learning Disability Quarterly, 9, 226-234.

Custrini, R. J., & Feldman, R. S. (1989). Children's social competence and nonverbal encoding and decoding of emotions. Journal of Clinical Child Psychology, 18(4), 336-342.

Cyker, H.B. (1992). Perception of nonverbal communication in children with learning disabilities and how it relates to social competence. Dissertation Abstracts International, 53(11-A), 3846. (University Microfilms No. 9309860)

Dimitrovsky, L., Spector, H., Levy-Shiff, R., & Vakil, E. (1998). Interpretation of facial expressions of affect in children with learning disabilities with verbal or nonverbal deficits. Journal of Learning Disabilities, 31(3), 286-292.

Doble, S. E., & Magill-Evans, J. (1992). A model of social interaction to guide occupational therapy practice. Canadian Journal of Occupational Therapy, 59, 141-150.

Edwards, R., Manstead, A. S. R., & McDonald, C. J. (1984). The relationship between children's sociometric status and ability to recognize facial expressions of emotion. European Journal of Social Psychology, 14, 235-238.

Egan, G.J., Brown, R.T., Goonan, L., Goonan, B.T., & Celano, M. (1998). The development in the emotions in children with externalizing behavioral disturbances and their normally developing peers. Archives of Clinical Psychology, 13(4), 383-396.

Ekman, P., & Friesen, W. (1969). The repertoire of nonverbal behavior: Categories, origins, usage, and coding. Semotica, 1, 49-98.

Ekman, P., & Friesen, W. (1976). Pictures of facial affect. Palo Alto: Consulting Psychologists Press.

Ekman, P. & O'Sullivan, M. (1991). Facial expression: methods, means, and moues. In R. S. Feldman & B. Rime (Eds.), Fundamentals of nonverbal behavior (pp. 163-199). New York: Cambridge University Press.

Feldman, R. S., Philippot, P., & Custrini, R. J. (1991). Social competence and nonverbal behavior. In R. S. Feldman & B. Rime (Eds.), Fundamentals of nonverbal behavior (pp. 329-350). New York: Cambridge University Press.

Feldman, R. S. & Rime, B. (Eds.). (1991). Fundamentals of nonverbal behavior. New York: Cambridge University Press.

Forness, S.R., & Kavale, K.A. (1996). Treating social skill deficits in children with learning disabilities: A meta-analysis of the research. Learning Disability Quarterly, 19, 2-13.

Gresham, F. M. (1985). Utility of cognitive-behavioral procedures for social skill training with children: A critical review. Journal of Abnormal Child Psychology, 13(3), 411-423.

Gresham, F. M., & Elliot, S. N. (1990). Social Skills Rating System manual. Circle Pines, MN: American Guidance Service.

Gresham, F.M., Reschly, D.J., & Carey, M.P. (1987). Teacher's as "tests": Classification accuracy and concurrent validation in the identification of learning disabled children. School Psychology Review, 16(4), 543-553.

Halberstadt, A. G., & Hall, J. A. (1980). Who's getting the message? Children's nonverbal skill and their evaluation by teachers. Developmental Psychology, 16(6), 564-573.

Harrigan, J. (1984). The effects of task order on children's identification of facial expression. Motivation and Emotion, 8, 157-169.

Hughes, J.N., & Sullivan, K.A. (1988). Outcome assessment in social skils training with children. Journal of School Psychology, 26, 167-183.

Johnson, W. F., Emde, R. N., Scherer, K., & Klinnert, M. (1986). Recognition of emotion from vocal cues. Archives of General Psychiatry, 43, 280-283.

Kirouac, G., & Dore, F. Y. (1985). Accuracy of the judgement of facial expression of emotion as afunction of sex and level of education. Journal of Nonverbal Behavior, 9(1), 1-66.

Koning, C., and Magill-Evans, J. (in press). Validation of the child and adolescent social perception measure. Occupational Therapy Journal of Research.

Maag, J. W., Vasa, S. F., Reid, R., & Torrey, G. K. (1995). Social and behavioral predictors of popular, rejected, and average children. Educational and Psychological Measurement, 55(2), 196-205.

Magill-Evans, J., Koning, C., Cameron-Sadava, A., & Manyk, K. (1995). Child and Adolescent Social Perception Measure. Journal of Nonverbal Behavior,19(3), 151-168.

Magill-Evans, J., Koning, C., Manyk, K., & Cameron-Sadava, A. (1995). Child and Adolescent Social Perception Measure: Manual. Unpublished manuscript.

Mathur, S. R., Kavale, K. A., Quinn, M. M., Forness, S. R., & Rutherford, R. B. (1998). Social skills interventions with students with emotional and behavioral problems: A quantitative synthesis of single-subject research. Behavioral Disorders, 23(3), 193-201.

Mathur, S. R., & Rutherford, R. B. (1996). Is social skill training effective for students with emotional or behavioral disorders? Research issues and needs. Behavioral Disorders, 22(1), 21-28.

McIntosh, R., Vaughn, S., & Zaragoza, N. (1991). A review of social interventions for students with learning disabilities. Journal of Learning Disabilities, 24(8), 451-458.

Merrell, K. (1991). Teacher ratings of social competence and behavioral adjustment: Differences between learning-disabled, low-achieving, and typical students. Journal of School Psychology, 29, 207-217.

Monfries, M. M., & Kafer, N. (1987). Neglected and rejected children: A social skills model. Journal of Psychology, 121, 401-407.

Morrison, R.I., & Bellack, A.S. (1981). The role of social perception in social skills. Behavior Therapy, 12, 69-79.

Newcomb, A., Bukowski, W., & Pattee, L. (1993). Children's peer relations: a meta-analytic review of popular, rejected, neglected, controversial, and average sociometric status. Psychological Bulletin, 113(1), 99-128.

Nowicki, S., & Duke, M. P. (1991). The association of children's nonverbal decoding abilities with their popularity, locus of control, and academic achievement. The Journal of Genetic Psychology, 153(4), 385-393.

Nowicki, S., & Duke, M. P. (1992). Helping the Child Who Doesn't Fit In. Atlanta: Peachtree Publishers, Ltd.

Nowicki, S., & Duke, M. P. (1994). Individual differences in the nonverbal communication of affect: The Diagnostic Analysis of Nonverbal Accuracy Scale. Journal of Nonverbal Behavior, 18, 9-35.

Odom, R.D., Lemond, C.M. (1972). Developmental differences in the perception and production of facial expressions. Child Development, 43, 356-369.

Parker, J.G., & Asher, S.R. (1987). Peer relations and later personal adjustment: Are low-accepted children at risk? Psychological Bulletin, 102(3), 357-389.

Patterson, M.L. (1991). A functional approach to nonverbal exchange. In R. S. Feldman & B. Rime (Eds.), Fundamentals of nonverbal behavior (pp. 458-495). New York: Cambridge University Press.

Philipott, P. & Feldman, R.S. (1990). Age and social competence on preschooler's decoding of facial expression. British Journal of Social Psychology, 29, 43-54.

Quinn, M. M., Kavale, K. A., Mathur, S. R., Rutherford, R. B., & Forness, S. R. (1999). A meta-analysis of social skill interventions for students with emotional or behavioral disorders. Journal of Emotional and Behavioral Disorders, 7(1), 54-64.

Reichenbach, L., & Masters, J.C. (1983). Children's use of expressive and contextual cues in judgements of emotion. Child Development, 54, 993-1004.

Rosenthal, R., Hall, J.A., Archer, D., Di Matteo, M.R., & Rogers, P.L. (1979). The PONS test manual: Profile of Nonverbal Sensitivity. New York: Irvington.

Rothenberg, B. B. (1970). Children's social sensitivity and the relationship to interpersonal competence, intrapersonal comfort, and intellectual development. Developmental Psychology, 2(3), 335-350.

Shapiro, E.G., Hughes, S.J., August, G.J., & Bloomquist, M.L. (1993). Processing of emotional information in children with attention-deficit hyperactivity disorder. Developmental Neuropsychology, 9, 207-224.

Singh, S.D., Ellis, C.R., Winton, A.S.W., Singh, N.N., Leung, J.P., & Oswald, D.P. (1998). Recognition of facial expressions by children with attention deficit-hyperactivity disorder. Behavior Modification, 22(2), 128-142.

Spence, S. (1987). The relationship between social-cognitive skills and peer sociometric status. British Journal of Developmental Psychology, 5, 347-356.

Stiliadis, K., & Wiener, J. (!989). Relationship between social perception and peer status in children with learning disabilities. Journal of Learning Disabilities, 22(10), 624-629.

Strickland-Gates, G. (1923). An experimental study of the growth of social perception. The Journal of Educational Psychology, 14(8), 449-462.

Tremblay, C., Kirouac, G., & Dore, F.Y. (1986). The recognition of adult's and children's facial expressions of emotions. The Journal of Psychology, 121(4), 341-350.

Vosk, B. N., Forehand, R., & Figueroa, R. (1983). Perception of emotions by accepted and rejected children. Journal of Behavioral Assessment, 5(2), 151-160.

Walden, T. A., & Field, T. M. (1990). Preschool children's social competence and production and discrimination of affective expressions. British Journal of Developmental Psychology, 8, 65-76.

Walker, D.W., & Leister, C. (1994). Recognition of facial affest cues by adolescents with emotional and behavioral disorders. Behavioral Disorders, 19(4), 269-276.

Walker, H. M., & McConnell, S. R. (1995). Walker-McConnell Scale of Social Competence and School Adjustment: Elementary Version manual. San Diego, CA: Singular Publishing Group, Inc.

Wentzel, K.R. (1991). Relations between social competence and academic achievement in early adolescence. Child Development, 62, 1066-1078.

Wiggers, M., & van Lieshout, C.F.M. (1985). Development of recognition of emotions: Children's reliance on situational and facial expressive cues. Developmental Psychology, 21(2), 338-349.

Appendix A: Information Sheets and Consent Forms

On Glenrose Rehabilitation Hospital Letterhead

Child's Information Letter

Validation of the Child and Adolescent Social Perception Measure

Dear Student,

A measure to test the ability of children to tell what other people are feeling has been developed. The measure is called the Child and Adolescent Social Perception Measure. It is a videotape of 10 scenes that show children in everyday social situations. The test has been used with other children in Edmonton Public Schools. I want to find out if the measure tests what it is supposed to test. I also want to know how similar or different it is from other tests which might measure the same things.

To do this I would like volunteers who are in grade five. Testing requires 45 minutes of your time. Testing will take place at a time that is good for both you and your teacher. The information will not be shared with the class.

Two questionnaires will be given to your teacher about your social and school related skills.

There are no direct benefits for being in the study. It will only help us who work with children with social skill problems. There are no known risks in being in this study.

All information will be held confidential except when professional codes of ethics and or legislation require reporting. Involvement in the project is voluntary and you have the right to withdraw from the study at anytime or refuse to answer a question. If you are willing to participate, please complete the attached consent form.

If you have any questions or concerns about the study you can talk with your parent(s) or your teacher.

Thank-you.

On Glenrose Rehabilitation Hospital Letterhead

Child's Consent Form

Project title: Validation of the Child and Adolescent Social Perception Measure

I,_____, am_____ years old.

I agree to be a part of this study. The study is about how different people score on a test. The test is about how people can tell what other people are feeling. I will watch a video and the tester will ask me how the people are feeling. My answers will be used to compare different scores.

Only the people working on this study will see the answers I give. No one is making me do this. I know that I can stop anytime I want to without getting into trouble. I have asked all the questions I had about the study.

If I have any more questions I can ask my parents, my teacher, or the person at the top of this sheet.

_____ _____

Child's signature Date

_____ _____

Researcher Date

On Glenrose Rehabilitation Hospital letterhead

Parent's/Guardian's Information Letter

Validation of the Child and Adolescent Social Perception Measure

Dear Parent/Guardian

A measure to test the ability of children between the ages of 6-15 years to understand nonverbal cues has been developed. These cues include facial expressions, tone of voice, body posture, and situational information. The measure is called the Child and Adolescent Social Perception Measure. It is a videotape of 10 scenes that show children in everyday social situations. The test has been used with other children in Edmonton Public Schools. I want to find out if the measure tests what it is supposed to test. I also want to know how similar or different it is from other tests which might measure the same things.

To do this I would like volunteers who are in grade five. Testing requires 45 minutes of your child's time. Testing will take place at a time that is good for both him/her and the teacher. The information will not be shared with the class. Two questionnaires will be given to your child's teacher about their social and school related skills. I will **not** be asking about your child's IQ.

There are no direct benefits for being in the study. It will only help us who work with children with social skill problems. There are no known risks in participating in this study.

The results of this research will be used to for completion of a thesis, articles in professional journals and oral presentations to professionals. All data will be stored in a secure place accessible only by the research team for a period of seven years. If any further analysis is conducted with the study, further ethics approval will be sought first.

All information will be held confidential except when professional codes of ethics and or legislation require reporting. Involvement in the project is voluntary and your child has the right to withdraw from the study at anytime or refuse to answer a question. If you are willing to have your child participate, please complete the attached consent form.

Please contact Val Guiltner at 471-2262 ext. 2755 if you have any questions pertaining to the study. In addition to those mentioned above you may also contact Dr. Warren at 492-7856 should you have any concerns with how this research is being conducted.

Thank-you.

On Glenrose Rehabilitation Hospital letterhead

Parent/Guardian's Consent Form

Letter of Consent

Title of Project: Validation of the Child and Adolescent Social Perception Measure

Do you understand that your child has been asked to be in a research study?
Yes No

Have you read and received a copy of the attached Information Sheet?
Yes No

Do you understand that your child will be asked to watch a videotape of 10 scenes that show children in everyday social situations and to label nonverbal cues of emotion?
Yes No

Do you understand the benefits and risks involved in taking part in this research study?
Yes No

Do you understand that you are free to refuse your child's participation or withdraw from the study at any time? You do not have to give a reason and it will not affect you or your child in any way.
Yes No

Has the issue of confidentiality been explained to you? Do you understand who will have access to the information your child provides?
Yes No

Do you understand that any information that identifies your child will be destroyed upon completion of this research?
Yes No

Do you understand that the results of this research will be used in the following ways: completion of a thesis, articles in professional journals and oral presentations to professionals.
Yes No

Have you had an opportunity to ask questions and discuss this study?
Yes No

This study was explained to me by: _____

I agree to take part in this study.

_____ _____

Signature of Parent Date Witness

_____

Printed Name Printed Name

I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate.

_____ _____

Signature of Investigator or Designee Date

On Glenrose Rehabilitation Hospital letterhead

Teacher's Information Letter

Validation of the Child and Adolescent Social Perception Measure

Dear Educator,

A measure to test the ability of children between the ages of 6-15 years to understand nonverbal cues has been developed. These cues include facial expressions, tone of voice, body posture, and situational information. The measure is called the Child and Adolescent Social Perception Measure. It is a videotape of 10 scenes that show children in everyday social situations. The test has been used with other children in Edmonton Public Schools. I want to find out if the measure tests what it is supposed to test. I also want to know how similar or different it is from other tests which might measure the same things.

To do this I would like volunteers who are in grade five. Testing requires 45 minutes of the student's time. Testing will take place at a time that is good for both the student and yourself. The information will not be shared with the class. I will be asking you to complete two questionnaires for each student about their social and school related skills. One questionnaire is a 9 item, likert style questionnaire. The other is a 43 item, likert style questionnaire. Together they will require approximately 5-7 minutes of your time.

There are no direct benefits for being in the study. It will only help us who work with children with social skill problems. There are no known risks in participating in this study.

The results of this research will be used to for completion of a thesis, articles in professional journals and oral presentations to professionals. All data will be stored in a secure place accessible only by the research team for a period of seven years. If any further analysis is conducted with the study, further ethics approval will be sought first.

All information will be held confidential except when professional codes of ethics and or legislation require reporting. Involvement in the project is voluntary and you have the right to withdraw from the study at anytime or refuse to answer a question. If you are willing to participate, please complete the attached consent form.

In addition to those mentioned above you may also contact Dr. Warren at 492-7856 should you have any concerns with how this research is being conducted.

Thank-you.

On Glenrose Rehabilitation Hospital letterhead

Teacher's Consent Form

Letter of Consent

Project Title: Validation of the Child and Adolescent Social Perception Measure

A measure to test the ability of children between the ages of 6-15 years to understand nonverbal cues has been developed. The measure is called the Child and Adolescent Social Perception Measure. It is a videotape of 10 scenes that show children in every day social situations. The validity of this test is being studied by this research.

I agree to participate in this study. I will be required to evaluate each of the participating students in my class on two separate measures. It will take me 5 to 7 minutes per child to complete the forms. The information will not be shared with my class.

There are no direct benefits for participating in the study. The information will assist people who are working with children with social skill deficits.

_____ _____

Teacher's signature Date

_____ _____

Researcher Date